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Editor's Note:

The following article on smallpox is the second in a series of articles dealing with those agents most likely to be used in a weaponized form as a bioterrorist agent.

Bioterrorism Update: Smallpox

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The very word smallpox evokes dread and fear in a person. It brings to mind images of gruesome disfigurement and death. Indeed, to many the idea of death is preferable to that of survival. Smallpox is feared as a possible source of bioterrorism, and Americans are clamoring for information on treatment, transmission, and vaccination. This article will attempt to address the most commonly asked questions regarding smallpox.

Background

Smallpox has long been used as a weapon of war. During the French and Indian Wars, British soldiers supplied American Indians with blankets that had been used by smallpox patients. The resulting epidemics killed up to 50% of some tribes that were targeted.¹ During World War II, the Japanese conducted research on the possible use of smallpox as a weapon.² The former Soviet Union is believed to have stockpiled the virus for use as a weapon; whether or not these stockpiles still exist is unknown.³

The World Health Organization (WHO) declared smallpox eradicated in 1980. To this date, it remains the only disease to be eliminated from the face of the earth by man.⁴ There are two stores of smallpox virus in the world approved by WHO. One is at the Centers for Disease Control and Prevention (CDC) in Atlanta; the other is at the Institute for Viral Preparations in Moscow.³ Concern over the use of smallpox as a biological agent stems from the precarious political and economic conditions in Russia. Those with access to official stores now most likely face extreme poverty and hardship, perhaps making them more susceptible to the temptation of selling stolen virus. During the early 1990s, major

continued on page two

A Needs Assessment of Persons Living with HIV/AIDS in Middle Tennessee

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The Ryan White CARE Act was passed in 1990 for the purpose of removing financial barriers to accessing medical care and supportive services for persons living with HIV/AIDS. The Ryan White Community HIV/AIDS Partnership (RWCAP), a consortium of service providers, is devoted to ensuring that quality services are available and accessible to persons living with HIV. As a recipient of Ryan White Title II funds, the RWCAP consortium conducts an annual needs assessment in Middle Tennessee for the purpose of identifying any unmet needs and determining barriers to getting needs met. The structure of the needs assessment process consists of a client survey, focus groups, an audit of regional resources, and interviews with key informants. This needs assessment is crucial to RWCAP strategy as it guides the consortium in promoting a quality continuum of care for persons with HIV/AIDS.

This report presents information based on a survey of clients who have received services from agencies and providers in Middle Tennessee. The purpose of this study was to gain an understanding of service needs based on clients' self-reports and identify any potential gaps in services.

continued on page six

In This Issue:

- 1 Bioterrorism Update: Smallpox
- 1 A Needs Assessment of Persons Living with HIV/AIDS in Middle Tennessee
- 5 Mission of Public Health Watch
- 10 Faces of Success
- 11 2001 National Health Observances
- 12 Index to Articles in Public Health Watch 2001
- 14 Reported Cases of Selected Notifiable Diseases

“That disease...was then the most terrible of all the ministers of death. The havoc of the Plague had been far more rapid: but the Plague had visited our shores only once or twice within living memory; and the small pox was always present, filling the churchyard with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of a betrothed maiden objects of horror to the lover.”

Thomas Babington Macaulay, *History of England*, chapter XX. London; 1848 [As cited in Clendening L, *Source Book of Medical History*, p.292 (q.v.)]

bioweapons research was performed at a facility called Vector in Koltsovo which was amply protected by stringent security measures. This facility contained stores of smallpox, Ebola, Marburg, and hemorrhagic fever viruses. Visitors to Vector in 1997 “found a half-empty facility protected by a handful of guards who had not been paid for months. No one can say where the scientists have gone, nor is there confidence now that this is the only storage site for smallpox virus outside the Centers for Disease Control and Prevention.”⁵

In 1996, WHO recommended that all smallpox stockpiles be destroyed by June 30, 1999. However, widespread concern that further study of the virus was needed prompted the Clinton administration to preserve U.S. stockpiles. They are officially scheduled for destruction on June 30, 2002.³

Historical Occurrence

Smallpox has plagued man for centuries. It is believed that Pharaoh Ramses V, who died in 1157 BC, was a victim of the disease.⁶ Though scientific testing has not conclusively proven this, there is no denying that the rash on his well-preserved mummy is consistent with the rash of smallpox, and this is generally accepted to be his cause of death. Spanish conquistadors brought the disease to the Americas in the 15th and 16th centuries.⁷ Smallpox swept through the Aztec and Inca populations and, from there, on into the New World.

The first recorded case of smallpox in Nashville occurred in 1817. Public Health came to Nashville in 1850 with the appointment of two health inspectors whose main purpose was the control and prevention of smallpox and cholera. By 1894, the city faced a smallpox epidemic. That year, smallpox vaccine was provided by physicians who actually walked the streets of Nashville in search of unvaccinated citizens. All residents were required by law to be vaccinated in 1908 in a further effort to control spread of the disease, and by 1934 proof of vaccination was required for a child to enter a county school.⁸

Smallpox occurred throughout the United States until the last outbreak in Texas in 1949. Eight people were stricken with the disease in the Rio Grande Valley that year. Lillian Bar-

ber, a 43-year-old mother of eight, was the only victim to succumb to the illness, and she is the last known person to die of smallpox in the U.S.⁹ The Barber family’s experience was a typical one. Both parents and one child were ill, and the family was quarantined. Neighbors left food for the family on the edge of their property daily, and the children boiled water to clean dirty bedding and clothes.

The last natural case in the world occurred in Somalia in 1977; the last two cases were laboratory-acquired in England in 1978.² Since WHO declared smallpox eradicated in 1980, it has been largely out of the limelight though its potential as a bioterrorist weapon has been recognized by experts in the field. The life-altering events of recent months have served to make the public aware of the use of biological agents as weapons, and have brought about the painful realization that smallpox could once again become a threat to our health and well being.

Clinical Features

Smallpox is caused by the variola virus, which is a member of the genus *Orthopoxvirus*.¹⁰ Variola is a large brick-shaped virus that exists as two different strains. Variola major causes a severe form of disease while variola minor causes a milder form. Following an incubation period of about 12 days, the classic illness begins with vague symptoms such as fever, body aches, head-

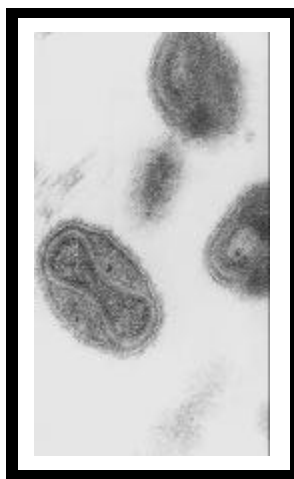


Figure 1: Transmission electron micrograph of the smallpox virus. Source of image: CDC/ Dr. Fred Murphy, Sylvia Whitfield.

continued on page three



Figure 2: Smallpox lesions on skin of trunk. Photo taken in Bangladesh in 1973. Source of image: CDC/James Hicks

ache, fatigue, and abdominal pain. This prodromal phase lasts two to four days and is followed by the onset of a papular rash on the face, mouth, and throat which quickly spreads to the extremities. The trunk of the body is last to develop the rash and is usually less severely affected than the face and extremities. The rash often occurs on the palms of the hands and the soles of the feet. Papules quickly progress to vesicles, then to pustules, and finally to scabs. Scabbing occurs 10-14 days after onset of the rash.² Fever persists throughout the progression of the rash, which is typically quite painful, and death most commonly occurs during the second week of illness.¹¹

Two other forms of illness can occur, both of which progress more rapidly than the classic form and are more difficult to recognize. Hemorrhagic smallpox is characterized by bleeding into the mucous membranes and skin. Malignant, or flat-type, smallpox is unique in that the lesions never become pustular but remain flat and soft to the touch.¹ Both hemorrhagic and malignant smallpox are almost always fatal, while the classic form has a 30% fatality rate in unvaccinated patients.²

Transmission

Smallpox is spread through person-to-person exposure to respiratory droplets. Patients who develop a cough are more

likely to spread the disease to others. Smallpox is not as highly contagious as other viral diseases. Those at high risk are close contacts of a patient. This is in part due to the fact that patients are not infectious until the onset of the rash, at which time they are generally too ill to be out of bed. Historically, only about 30% of susceptible contacts became infected.² Patients remain infectious until all scabs have separated. Some contacts may carry the virus in the throat without exhibiting symptoms, thereby making it possible for them to unwittingly spread the disease to others.³ Smallpox is most easily spread during cool weather seasons and in areas of low humidity.⁷

Healthcare providers who care for smallpox patients are at increased risk. Airborne and Contact Precautions are necessary. Patients should be in a private room with negative air-pressure ventilation.¹⁰ All persons entering the room should wear an N95 HEPA filter mask, gown, gloves, and shoe covers. Linens should be autoclaved before laundering.

Diagnosis

Since the last case of smallpox in America occurred over fifty years ago, it is doubtful that many, if any, currently practicing healthcare providers have ever seen the disease. We are at a distinct disadvantage should new cases

occur. When you add to our inexperience the fact that initial symptoms are vague, the possibility of rapid diagnosis seems unlikely in early cases.

Diagnostic testing of vesicular or pustular fluid or of smallpox scabs is used to confirm a case of smallpox. Nasal and pharyngeal swabs may also prove helpful. If a provider suspects smallpox in a patient, local and state health officials must be notified immediately in order to arrange for shipment of specimens to the CDC. Specimens should be placed in a sterile vacutainer tube. The stopper should be affixed to the tube with tape. The tube should then be sealed in a waterproof container for shipping.⁷

Smallpox has most often been misdiagnosed as chickenpox. There are, however, some very distinct differences between the two. Smallpox lesions appear first on the face and extremities while chickenpox appears first on the trunk. Chickenpox rarely causes a rash on the palms and soles. Smallpox lesions on a specific area of the body will be in the same stage of development and will appear identical. With chickenpox, vesicles, pustules, and scabs are seen grouped together. Also, smallpox lesions are much deeper than the superficial lesions of chickenpox.¹¹

Vaccination

In 1796, Edward Jenner noted that milkmaids who fell ill with cowpox rarely contracted smallpox. That same year Jenner developed the first smallpox vaccine using the cowpox virus.⁷ The vaccine in use today is made of vaccinia virus, which is related to cowpox. U.S. supplies of vaccine are housed at the CDC. Even though routine vaccination ended in 1972, the vaccine is still used for laboratory workers involved in smallpox research. The vaccine has been routinely tested for potency and bacterial contamination and remains effective.¹²

continued on page four

There are approximately 15 million doses of smallpox vaccine in the United States.¹³ In the event that smallpox is used as a bioterrorist weapon, this would not be enough to protect the American population. In 1972, a single case of smallpox in Yugoslavia occurred; 18 million doses of vaccine were used to prevent further spread of the disease.¹⁴ It has been estimated that 40 million doses would be needed in the event of a smallpox release in America.¹⁵ Production of new vaccine has been planned since September 2000. Delivery of the first 40 million doses to the CDC is set for 2004.¹³ The CDC has also been researching the possibility of diluting the existing vaccine in order to increase the number of doses available. Early reports on a 1:5 dilution are encouraging, though it is too soon for a final determination.¹²

A person is considered immune to smallpox if they have been successfully vaccinated within the past three years.³ Vaccination resulting in the formation of a vesicle with subsequent scar formation is called a "take" and indicates that the person has immunity. It is unclear whether or not those persons who received a one-time childhood dose of vaccine have any protection. While individual responses vary, immunity lasts an average of 5-7 years.⁷ It is therefore safest to assume that the vast majority of Americans are susceptible to smallpox.

There are several adverse reactions associated with smallpox vaccination. Most occur in those receiving the primary vaccination. Because vaccine virus is present in the lesion produced by vaccination, it is possible for that virus to be introduced to other parts of the body or to other people. These events are called autoinoculation and secondary inoculation respectively. Ocular vaccinia refers to the introduction of virus into the eye and can cause permanent vision impairment. Generalized vaccinia causes a vesicular rash 6-9 days after vaccination.²

Severe adverse reactions are also possible. Persons with eczema are prone to a local or systemic spread of the vaccinia virus. While this is usually not serious, up to 10% of cases are severe or even fatal. Progressive vaccinia, or vaccinia necrosum, causes a dramatic necrosis at the site of vaccination and has a fatality rate of over 75%. It is associated with patients who are immunosuppressed.² Another serious reaction is postvaccinial encephalitis which has a fatality rate of 40% and can leave survivors with permanent brain damage.¹¹

While these reactions are not commonplace, the use of vaccine for pre-exposure prophylaxis is contraindicated in

continued on page five

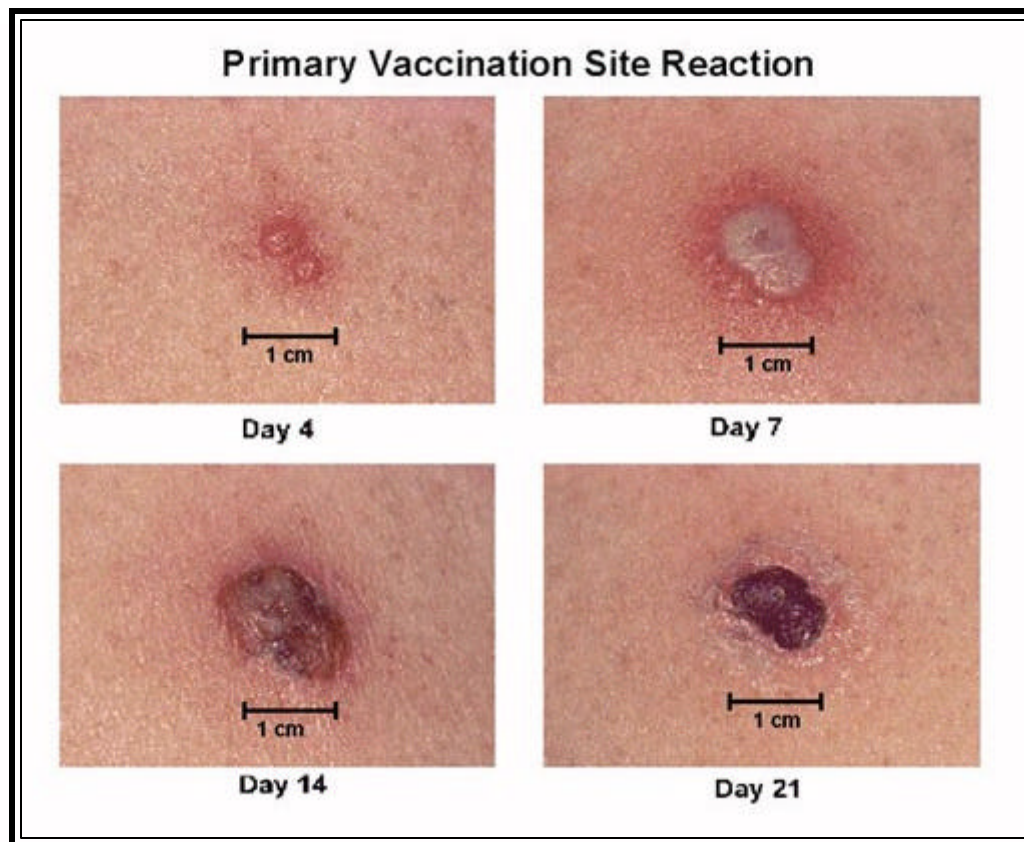


Figure 3: Primary vaccination site reaction: Expected vaccine site reaction and progression following primary smallpox vaccination or revaccination after a prolonged period between vaccinations. Multiple pressure vaccination technique used. Source of image: CDC.

immunocompromised patients and persons with a history of eczema. It is also contraindicated for use in close contacts of those persons. Pregnancy is also a contraindication.² However, in the event of an exposure there are no ironclad contraindications as the risks associated with smallpox may outweigh those of vaccination.¹² Vaccinia immunoglobulin (VIG) can be given along with vaccine in high risk persons to lower the risk of adverse reactions.

Treatment

There is no approved drug for the treatment of smallpox. Treatment is supportive. Antibiotics may be indicated to treat secondary bacterial infection in some cases. Research has shown that cidofovir, cyclic cidofovir, adefovir dipivoxil, and ribavirin may be of use in treating smallpox.¹⁶ It is also theorized that rifampin and S-adenosylhomocysteine hydro-lase inhibitors might be effective for treatment and/or prophylaxis.²

Treatment of close contacts of the index patient is crucial in order to control the spread of the disease. Identification of contacts is based on when the patient was infectious and involves persons who came within 6 feet of the patient during that time.¹² Vaccine should be administered within four days of exposure.¹⁰ Those patients at high risk for an adverse reaction may be given VIG as well as vaccine. Contacts should be isolated and placed under surveillance for 17 days.⁷ If a contact of the index patient becomes ill, identification of others at risk begins. Because smallpox spreads rather slowly from person to person, this process has historically been effective in controlling the spread of disease and was a major component of the eradication process.

Summary

It is difficult to imagine anyone purposely exposing another person to smallpox. Such an act would be a heinous crime, especially considering the effort that went into eradicating this devastating disease. However, the possibility that smallpox could be used as a biological weapon is a reality. We must do everything possible to ensure that we are prepared to deal with such a catastrophe through diagnosis, quarantine, and vaccination.

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Coming in the March/April 2002 issue of Public Health Watch: Bioterrorism Update: Chemical Agents

Mission of Public Health Watch

Public Health Watch's mission is to promote improvement of the health of the public in Davidson County by:

- Producing a newsletter that is timely, credible, easy to read, and that addresses a broad range of public health topics of interest to the Davidson County community;
- Disseminating information regarding community health status in Davidson County;
- Promoting awareness of public health initiatives;
- Providing a forum for practitioners of public health and concerned citizens to discuss issues of public health importance;
- Educating a diverse readership on the importance of public health efforts to protect personal and environmental health.

Methodology

Survey. The survey contained demographic questions on respondent race, age, sex, income, and living arrangements. Additional questions pertained to the method of acquiring HIV/AIDS, sexual orientation, and CD4/T-cell and viral load counts*. The survey provided an extensive list of services and asked the respondent to give information on whether specific services were needed and received. In addition, the respondents identified barriers to receiving services.

Sample and Methods. One thousand six hundred seventy questionnaires were distributed to clients of eight agencies working with HIV/AIDS patients. Clients were given a pre-paid envelope for returning their completed surveys. All responses were confidential and anonymous. Three hundred fifty two surveys were returned. It is important to note that this method produced a convenience sample, which may not be representative of the entire population of persons living with HIV/AIDS. The data collection period was from May until August 2001. This response resulted in an overall margin of error of $\pm 5\%$.

Results

Respondent Characteristics.

As can be seen in Table 1, most respondents were men (71%), over half were White (58%), 46% were gay/lesbian, and 41% were heterosexual. Over half (58%) of respondents were over 40 years of age and about a third (34%) reported a monthly household income of less than \$999.00. Over half (56%) reported that they rent or share mortgage payments; however, it should also be noted that 7% of the respondents indicated being homeless. Almost half (47%) reported living alone. In terms of income sources,

*CD4/T-cell counts are a measurement of immune system suppression; viral load counts are a measurement of the amount of HIV virus in the bloodstream.

about one third (34%) receive SSI or SSDI while 23% reported that they are employed for wages. The majority of respondents had their insurance coverage through TennCare (74%). Only 1% of the sample reported having no insurance.

As shown in Table 2, a little over half of respondents reported their CD4/T-cell count to be greater than 200. Approximately one quarter of respondents did not know or did not report their CD4/T-cell count. Twenty-five percent of respondents reported their viral load to be less than 400. Twenty percent reported their viral load to be 400-9,999. However, almost one third of respondents did not know or did not report their viral load. Most reported that they contracted the disease through man-to-man contact (47%) followed by heterosexual contact (24%). Finally, a large majority of respondents (67%) reside in Davidson County, and most respondents reported receiving care in Davidson County (80%).

Respondent Characteristics: A Focus on Women Several questions focused on factors specific to the ninety-five females who responded to the questionnaire. Only one female reported being pregnant at the time of the survey. Twenty-two females (23%) reported being on AZT, Combivir, or another antiretroviral regimen that contains AZT. Twenty-three percent (22 women) reported that at least one other person in their household was HIV positive, another four percent (4 women) reported that two other persons in their household were HIV positive, and one woman reported that three other persons in her household were HIV positive.

continued on page seven

Table 1: Respondent Characteristics: Demographics

Gender		Housing (Multiple Responses)	
Male	71%	Rent/Share Mortgage	56%
Female	27%	Own Home	23%
Transgender	2%	Homeless	7%
		Shelter/Transitional	2%
Age		Other	11%
20-29	4%	Not Reported	1%
30-39	39%		
40-49	43%	Income Sources (Multiple Responses)	
50-59	13%	SSI/SSDI	34%
60+	2%	Employment	23%
		Private Disability	5%
Race/Ethnicity		AFDC	8%
African-American	39%	Unemployment	3%
White	58%	VA	1%
Native American	2%	Other	13%
Hispanic/Asian/Other	1%	Not Reported	13%
Monthly Household Income		Insurance Coverage (Multiple Responses)	
< \$999	34%	TennCare	74%
\$1000-\$1999	10%	Medicare	27%
\$2000-\$2999	7%	Private	14%
Over \$3000	5%	VA	4%
Don't know	5%	None	1%
Not Reported	37%		
Individuals in Household		Sexual Orientation	
One	47%	Heterosexual	41%
Two	25%	Gay/Lesbian	46%
Three	8%	Bi-sexual	6%
> Three	7%	Not Reported	6%
Not Reported	13%		
Children to Care for			
Yes	30%		
Not Reported	5%		

SSI: Supplemental Security Income SSDI: Social Security Disability Income
AFDC: Aid to Families with Dependent Children VA: Veterans Administration
Percentages may not sum to 100% due to rounding and multiple response categories.

Table 2: Respondent Characteristics: Disease Specific Characteristics

CD4/T-Cell Count		Viral Load	
< 50	8%	< 400	25%
51-200	14%	400-9999	20%
201-500	34%	10,000-49,999	10%
> 500	18%	50,000-99,999	5%
Don't Know	18%	> 100,000	9%
Not Reported	8%	Don't Know	19%
		Not Reported	12%
Length of Time since CD4 count tested		Length of Time since Viral load tested	
< = 1 month	26%	< = 1 month	25%
> 1 months – 2 months	21%	> 1 months – 2 months	18%
> 2 months – 4 months	28%	> 2 months – 4 months	23%
> 4 months – 6 months	8%	> 4 months – 6 months	9%
> 6 months	3%	> 6 months	6%
Not Reported	13%	Not Reported	19%
Transmission Type			
Man to Man	47%	Hemophilia	1%
Heterosexual	24%	Woman to Woman	< 1%
IV Drug Use	8%	Other	11%
Occupational Exposure	2%	Not Reported	6%
County of Residence		County Where Care Is Received	
Davidson	67%	Davidson	80%
Rutherford	4%	Putnam	5%
Sumner	3%	All Other counties	< 1% each
Cumberland	2%	Not Reported	7%
Montgomery	2%		
Putnam	2%		
All Other Counties	< 1% each		
Not Reported	6%		

Differences by Respondent Characteristics A series of chi square tests were computed to determine if and how demographic characteristics were related. Most results were not significant ($p < 0.05$) with the exception of the following:

Race. African-American respondents reported significantly lower incomes compared to Whites. Forty-seven percent of African-Americans in the sample reported incomes of less than \$1,000 monthly compared to the 26% of White respondents who reported that income level. In addition, a greater percentage of African-American respondents reported living in Davidson County (48%) compared to White respondents (25%).

Service Needs and Barriers to Getting Needs Met

Respondents were asked to indicate their needs and if those needs were met. Respondents were also asked to indicate the barriers they experienced in getting their needs met.

Overall Service Needs The service needs are shown in Table 3 (see page 8). This table ranks the services based on overall need regardless of the need having been met. The information presented illustrates the priorities of need based on this sample of persons living with HIV/AIDS.

Over half the sample identified the following as needs: 1) Primary Care and HIV doctor (72%); 2) Eye Care (58%); 3) Basic Dental Care (58%); 4) Food Basket/Food Voucher/Food Pantry (58%); 5) Case Management (55%); and 6) Prescriptions (54%). Approximately half the sample identified counseling (48%) as a need. Between one third and one half identified the following as needs: 8) Support Group (42%); 9) Medical Insurance Assistance (39%); 10) Rent Assistance (39%); 11) Transportation to Medical Appointments (35%); 12) Utility Assistance (35%); 13) Dental Care (Bridges/Orthodontics/Dentures) (33%); 14) Nutritional Supplements (33%); 15) Nutritional Guidance and Counseling (32%); 16) Low Income Housing (32%); and 17) Specialists (30%).

continued on page eight

Table 3 also displays the corresponding percentage of unmet needs for each service need listed. For example, although having a Primary Care/HIV doctor was ranked as the greatest need, it was ranked 29th as an unmet need; only 4% of the sample indicated this need was not met. On the other hand, the need for Bridges/Orthodontics/Dentures was ranked first in regard to gaps in services; 67% of the sample that indicated that they had this need stated that the need was not met. Please note that the number responding to each category of this question will not always sum to the total in the sample. Those service needs for which less than 50 persons responded are not included in the overall ranking of service needs and gaps in service needs.

Differences in Needs by Respondent Characteristics For all needs in which sample sizes were adequate ($N \geq 50$), t-tests were computed on demographic characteristics to determine if any unmet needs differed by group. The unmet needs with adequate sample sizes included eye care, dental checkups, dental bridges/orthodontics, budgeting assistance, housing assistance, and legal assistance. The unmet needs did not significantly ($p < 0.05$) vary by demographic characteristic with the exception of the following:

- Those with incomes less than \$1,000 had greater unmet needs for dental bridges/orthodontics (26%) compared to all others in the sample (14%).
- Those in households with more than two persons had a greater unmet need for dental bridges/orthodontics (32%) compared to those in smaller households (19%).

Gaps in Service Needs Table 4 displays the same information shown in Table 3 in rank order based on the services that were needed but were not received: the gap in service needs. In addition, the table shows the overall rank based on need compared to the rank based on the gap in receiving needed services. The greatest gap was

Table 3: Overall Service Needs

Rank Based on Gaps in Services	Overall Rank of Needs	Service Need	I didn't need	I needed & I got	I needed but didn't get	Total Reporting Need	% Gap in Service Needs
29	1	Primary Care/HIV doctor	42	245	10	255 (72%)	4%
12	2	Eye Care	99	143	63	206 (58%)	31%
8	3	Dental Care-Check-up/Filling/Extractions	74	111	93	204 (58%)	46%
17	4	Food basket/Food Voucher/Food Pantry	87	158	46	204 (58%)	23%
27	5	Case Management	89	172	24	196 (55%)	12%
28	6	Prescriptions	87	168	22	190 (54%)	12%
24	7	Counseling	101	142	30	172 (48%)	17%
14	8	Support Group	123	108	39	147 (42%)	27%
19	9	Medical Insurance Assistance	141	108	30	138 (39%)	22%
7	10	Rent assistance	145	73	64	137 (39%)	47%
23	11	Transportation to Medical Appointments	174	103	22	125 (35%)	18%
4	12	Utility Assistance	154	52	72	124 (35%)	58%
1	13	Dental Care- Bridges/Orthodontics/Dentures	140	38	77	115 (33%)	67%
15	14	Nutritional Supplements	155	85	30	115 (33%)	26%
22	15	Nutritional Guidance/Counseling	156	93	20	113 (32%)	18%
11	16	Low Income Housing	168	72	41	113 (32%)	36%
18	17	Specialist	164	83	23	106 (30%)	22%
20	18	Help Understanding Medications	169	74	21	95 (27%)	22%
2	19	Legal Services	171	36	59	95 (27%)	62%
16	20	Assistance from Volunteers	170	71	22	93 (26%)	24%
10	21	Treatment Education	189	55	32	87 (25%)	37%
13	22	Transportation to Social Service Appointments	196	50	27	86 (24%)	31%
26	23	Safer Sex Resources	187	71	11	82 (23%)	13%
25	24	Medical Equipment	210	60	12	72 (20%)	17%
3	25	Budgeting Assistance	196	25	46	71 (20%)	58%
5	26	Employment Counseling	207	26	36	62 (18%)	58%
21	27	Alcohol/Drug Treatment	211	50	14	64 (18%)	22%
6	28	Home Delivered Meals	211	32	29	61 (17%)	48%
9	29	Emergency Transitional Housing	202	32	26	58 (16%)	45%
Needs with Sample Size of < than 50							
30	30	Hospice	235	18	7	25 (7%)	28%
31	31	Attendant Care	240	17	7	24 (7%)	29%
32	32	Child Day Care	246	5	12	17 (5%)	71%
33	33	Adult Day Care	252	9	6	15 (4%)	40%
34	34	Help with Child if Hospitalized	253	3	5	8 (2%)	63%

the need for Bridges/Orthodontics/Dentures (67%). In addition, other gaps were legal services (62%); budgeting assistance (65%); utility assistance and employment counseling (58%); home delivered meals (48%); rent assistance (47%); dental check-ups/fillings/extractions (46%); emergency transitional housing (45%); treatment education (37%); low income housing (36%); eye care and transportation to social service appointments (31%).

Barriers to Obtaining Services

Respondents indicated any barriers they may have had in obtaining various services including medical care,

dental care, substance abuse, social services/counseling, food services, family services, benefits/financial services, housing, access to services, and obtaining education and information. Table 5 shows that most respondents reported no barriers to obtaining services. Of those who did experience barriers, the most reported problem was transportation followed by not knowing where to go. Transportation was the greatest problem for obtaining medical care and accessing services. Not knowing where to go was cited as the greatest problem in obtaining dental care. Very few respondents reported not qualifying or

continued on page nine

having a problem with childcare or a language barrier.

CONCLUSIONS

The purpose of this survey was to examine the needs of persons living with HIV/AIDS, as well as to examine how well these needs were being met. The results of the survey suggest that there are needs that are not fully being met.

Overall, the needs for primary care, prescriptions, case management, and counseling are fairly well met. The greater of the unmet needs include dental care, eye care, and basic support services including utility and rent assistance, employment counseling, budgeting assistance, legal services, home delivered meals, emergency housing and low income housing, treatment education, and transportation to social service appointments.

There were few barriers to obtaining services related to transportation, not knowing where to go, not qualifying, child care, or language barriers.

Because these results reflect persons who, at the time of the interviews, were receiving HIV/AIDS services from Middle Tennessee agencies and providers, generalizations should not be made to the entire HIV/AIDS population in the Middle Tennessee community.

Table 4: Gaps in Service Needs

Rank based on Gaps in Services	Overall Rank of Needs	Service Need	I needed & I got	I needed but didn't get	Total Reporting Need	% Gaps in Service Needs
1	13	Dental Care-Bridges/Orthodontics/Dentures	38	77	115	67%
2	19	Legal Services	36	59	95	62%
3	25	Budgeting Assistance	25	46	71	65%
4	12	Utility Assistance	52	72	124	58%
5	26	Employment Counseling	26	36	62	58%
6	28	Home Delivered Meals	32	29	61	48%
7	10	Rent assistance	73	64	137	47%
8	3	Dental Care-Check-up/Filling/Extractions	111	93	204	46%
9	29	Emergency Transitional Housing	32	26	58	45%
10	21	Treatment Education	55	32	87	37%
11	16	Low Income Housing	72	41	113	36%
12	2	Eye Care	143	63	206	31%
13	22	Transportation to Social Service Appointments	50	27	86	31%
14	8	Support Group	108	39	147	27%
15	14	Nutritional Supplements	85	30	115	26%
16	20	Assistance from Volunteers	71	22	93	24%
17	4	Food basket/Food Voucher/Food Pantry	158	46	204	23%
18	17	Specialist	83	23	106	22%
19	9	Medical Insurance Assistance	108	30	138	22%
20	18	Help Understanding Medications	74	21	95	22%
21	27	Alcohol/Drug Treatment	50	14	64	22%
22	15	Nutritional Guidance/Counseling	93	20	113	18%
23	11	Transportation to Medical Appointments	103	22	125	18%
24	7	Counseling	142	30	172	17%
25	24	Medical Equipment	60	12	72	17%
26	23	Safer Sex Resources	71	11	82	13%
27	5	Case Management	172	24	196	12%
28	6	Prescriptions	168	22	190	12%
29	1	Primary Care/HIV doctor	245	10	255	4%
Gaps in Service Needs with Sample Size < 50						
30	30	Hospice	18	7	25	28% (N=25)
31	31	Attendant Care	17	7	24	29% (N=24)
32	32	Child Day Care	5	12	17	71% (N=17)
33	33	Adult Day Care	9	6	15	40% (N=15)
34	34	Help with Child if Hospitalized	3	5	8	63% (N=8)

Table 5: Barriers to Obtaining Services

Service	Transportation	Didn't Know Where To Go	Didn't Qualify	Child Care	Language Barrier
Medical Care	12%	6%	5%	< 1%	< 1%
Dental Care	9%	13%	7%	< 1%	0%
Substance Abuse Services	5%	3%	2%	0%	0%
Social Services/Counseling	8%	5%	1%	< 1%	0%
Food Services	7%	5%	2%	< 1%	0%
Family Services	3%	2%	3%	1%	0%
Benefits/Financial Services	5%	9%	4%	< 1%	< 1%
Housing	5%	6%	4%	< 1%	0%
Access to Services	11%	5%	2%	< 1%	0%
Obtaining Education & Information	5%	9%	1%	1%	1%
Average Total	7%	6%	3%	< 1%	< 1%

Editor's Note: Periodically, *Public Health Watch* may present pieces written by Metropolitan Health Department employees that describe their daily work activities and the impact that this work has on the Nashville community.

Faces of Success

Frances Clark, M.S., M.A.C., Director of Substance Abuse and Mental Health Services

On almost a daily basis, our office receives phone calls from family members wanting to get a substance abuser into treatment. We spend many combined hours reassuring, calming fears, and simply listening to tired, overwhelmed, and fed-up parents, siblings, children, and significant others. We acknowledge those fears, the anger, and the efforts they have put forth in attempting to "save" their family member. We assure them that the best way they can help someone else is to help themselves. We strongly encourage them to seek help to deal with their own emotions. We do not place blame, tell them they are wrong in enabling, or try to get them to recognize the part they play in the family disease of addiction. We attempt to steer them to treatment or self-help programs by helping them to see that they will be helping the substance abuser if they show support by being willing to get help themselves. They are grateful for this and the substance abuser oftentimes calls for an appointment.

We have many clients who we have seen over the past three and a half years of operation who still keep in touch with us to let us know that they are doing well. Some have as much as three years of recovery. We have clients who relapse and return to us because they know that they will be treated with dignity and respect and will get the help that they need to get back on the road of recovery. This is success.

Recently, we had a man come in for an assessment. He told his story: He had parked his truck in front of a crack house and went in for a crack run. When he returned to his truck some time later, he found a business card there. It was well worn. It was that of Beth Boilott, one of the Opening Doors case managers (CM). The man called and scheduled an appointment. He was referred to treatment. He, to this day, does not know who left the card in his truck.

One of the case managers assessed a homeless man who was in need of medical detoxification (detox). He had been referred by a street outreach (OR) worker. He was sleeping on the steps of a church each night. We could not secure a detox bed that night so he was put on the waiting list for the next slot. A few days later, a call came that there would be a



Frances Clark, M.S., M.A.C., Director of Substance Abuse and Mental Health Services

bed the next day at 1:00. The CM called the OR worker and asked her to keep an eye out for the client. The CM then called the priest at the church and asked him to have the client call her if he saw him. The man was seen by both and notified the CM. He went to detox the next day. This is successful case management. Through networking and services coordination, the man will now have access to treatment and other homeless resources in order to pursue recovery.

I walked into the waiting room one day and observed a man eating some snack foods. He had been seen the day before for an assessment and had been referred to the Tuberculosis Control Clinic for a chest X-ray. He returned to our office to update the assessor on what he was doing and to get more information on his appointment for treatment. I asked where he had gotten the food, as I knew that he was homeless. He had followed up on a referral to the Ladies of Charity and had been given some food.

A woman was recently escorted into my office by one of the case managers. She had previously been assessed for inpatient treatment. She had completed treatment and was living in a halfway house. She had, at that time, about six months of recovery. She had just stopped by to say, "I'm doing good."

Opening Doors has many stories like these. We are a successful program. Success is measured in many ways. We talk about outcomes, which are important, but each individual client is a success in his/her own right.

2002 National Health Observances

Health observances are days, weeks, or months devoted to promoting particular health concerns.

February

American Heart Month
National Birth Defects Prevention Month
National Children's Dental Health Month
20 - 26 Healthy Weight Week
10 - 16 National Child Passenger Safety Awareness Week

March

Mental Retardation Awareness Month
National Colorectal Cancer Awareness Month
National Kidney Month
National Nutrition Month
17 - 23 National Poison Prevention Week
24 World Tuberculosis Day

April

Alcohol Awareness Month
Cancer Control Month
National Child Abuse Prevention Month
National Sexually Transmitted Disease Awareness Month
1 - 7 National Public Health Week
4 Kick Butts Day
7 World Health Day
14 - 20 National Infants Immunization Week
14 - 20 National Minority Cancer Awareness Week

May

Asthma and Allergy Awareness Month
Older Americans Month
Skin Cancer Awareness Month
Clean Air Month
Hepatitis Awareness Month
National SAFE KIDS Week
National Suicide Awareness Week
Lyme Disease Awareness Month
National Arthritis Month
National High Blood Pressure Education Month
National Melanoma/Skin Cancer Detection and Prevention Month
Mental Health Month
National Osteoporosis Prevention Month
National Stroke Awareness Month
National Teen Pregnancy Prevention Month
20 - 27 Buckle Up America
29 National Senior Health and Fitness Day

June

10 - 16 National Men's Health Week

July

Fireworks Safety Month

August

National Immunization Awareness Month
1 - 7 World Breastfeeding Week

September

Baby Safety Month
Cold and Flu Campaign
Ovarian Cancer Awareness Month
National Cholesterol Education Month

October

Domestic Violence Awareness Month
Sudden Infant Death Syndrome Awareness Month
National Breast Cancer Awareness Month
Healthy Lung Month
7 National Child Health Day
13 - 19 National Adult Immunization Week
21 - 27 National Health Education Week

November

American Diabetes Month
17 Great American Smokeout

December

1 World AIDS Day

Editor's Note: The information provided above was obtained from the National Health Information Center. The information is provided to assist health professionals, teachers, or community groups who use the special times to sponsor health promotion events, stimulate awareness of health risks, or focus on disease prevention. This is not intended to be a complete listing of health observances for 2002. Information appearing in the list does not represent an endorsement by the Metropolitan Health Department of Nashville and Davidson County. The list may be accessed on the Internet: www.health.gov/NHIC/Pubs/. Information about the sponsoring organization for each observance is available on the website. Source: 2002 National Health Observances, National Health Information Center, Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services, Washington, D.C.

Index to Articles in *Public Health Watch* 2001

Editor's Note: The following is a listing of articles by issue, title, author, and page number for year 2001.

<u>Issue</u>	<u>Title of Article</u>	<u>Author</u>	<u>Page Number</u>
Special Edition January 2001	Welcome to this special edition of Public Health Watch	Jon Warkentin	1
	Surveillance: The Foundation of Public Health	Catherine Seigenthaler	2
	Bioterrorism: The Role of the Metropolitan Health Department	Pamela Trotter	4
	Chemical Terrorism at the Adelphia Coliseum	Denise Stratz	5
	Meningococcal Disease or It's Not Just About Meningitis	Pamela Trotter	7
	Influenza Vaccine 2000 - 2001	Pamela Trotter and Catherine Seigenthaler	9
	Notifiable Diseases	Tennessee Department of Health	Insert
	Old Disease/New Disease...Still a Problem	Chris Freeman	12
	HIV/AIDS Surveillance	Brad Beasley and Mary Angel-Beckner	12
	A Captive Audience "Community Partnership Helps to Combat Nashville's Syphilis Epidemic"	Catherine Seigenthaler and Chris Freeman	13
	STD Free!	Tina Lester	14
	From the Lentz Tuberculosis Control Division Division: "The Need for Vigilance is Crucial"	Diane Schmitt	15
	TB Quick Facts	Tuberculosis Control Division	16
	New Recommendations from the American Thoracic Society and the Centers for Disease Control and Prevention	American Thoracic Society and Centers for Disease Control and Prevention	17
	Surveillance: A TB Management Priority	Gail Claybrooks	18
	Tuberculosis Trials Consortium	Linda Reeves-Hammock	18
	Useful Websites Pertaining to Communicable Diseases	Bureau of Communicable Disease Control	19
	Request for Feedback	Catherine Seigenthaler	20
January/February 2001	Looking at Where We Are...and the Beyond	Stephanie Bailey	1
	February Is American Heart Month	Public Health Watch Staff	2
	Recommendations for Health Professionals	Public Health Watch Staff	3
	Mission of Public Health Watch	Public Health Watch Staff	3
	2001 National Health Observances	National Health Information Center/Public Health Watch Staff	4
	Index to Articles in Public Health Watch 1998 through 2000	Nancy Horner	6
	Reported Cases of Selected Notifiable Diseases for November/December 2000	Nancy Horner	14
March/April 2001	Lyme-like Disease in Tennessee	Allen Craig	1
	Growing Up with Public Health	Martha Lentz Walker and John Jackson Lentz	3
	You Can Make a Difference for Youth "What Kids Need to Succeed"	Jennifer Kosinski	5

Index to Articles in *Public Health Watch* 2001

<u>Issue</u>	<u>Title of Article</u>	<u>Author</u>	<u>Page Number</u>
March/April 2001	Melissa Garcia Joins the Staff of the Division of Epidemiology	Public Health Watch Staff	7
	Davidson County Breast-feeding Rates Increase	Marianne Greenwood	8
	Letters from the Breast-feeding Support Group	Breast-feeding Support Group	10
	Davidson County Animal Services Facility Opens April 9, 2001	Public Health Watch Staff	14
	May is Mental Health Month	Tennessee Voices for Children	15
	Reported Cases of Selected Notifiable Diseases for January/February 2001	Nancy Horner	16
July/August 2001	Mobilizing for Action through Planning and Partnerships: A Community Roadmap to Health	Nancy Horner	1
	Foodborne Illness in Tennessee	Timothy Jones	1
	How MAPP Works	Nancy Horner	4
	Nashville Launches MAPP: Mobilizing for Action through Planning and Partnerships	Alisa Haushalter	6
	Message from Mayor Bill Purcell	Kelvin Jones	7
	Metropolitan Health Department's Youth Advisory Board Supports MAPP	Karen Baer, Gabrielle Schonder, Allison Wiley, and Emma Cermak	8
	Interview with MAPP/NACCHO Demonstration Site Team	Nancy Horner	9
	Creating a Healthy Community through MAPP	Stephanie Bailey	15
	Reported Cases of Selected Notifiable Diseases for May/June 2001	Nancy Horner	16
September/October 2001	Safety Belt Use in Davidson County, Tennessee	Melissa Garcia	1
	Part Two of Syphilis Epidemic Investigation Report Released	Jesse Huang	5
	Preparedness against Chemical and Biological Attacks	Stephanie Bailey	Insert
	Bioterrorism Questions Answered: Smallpox and Anthrax	Division of Notifiable Disease/ Immunization Promotion	Insert
	Building Infrastructure to Protect the Public's Health	Jeffrey Koplan	Insert
	Pediatrics, Public Health, or Both?	Kimberlee Wyche-Ethridge	7
	Public Health Infrastructure: A Status Report	Department of Health and Human Services and Centers for Disease Control and Prevention	8
	The Courage To Do the Right Thing	Stephanie Bailey	9
	Reported Cases of Selected Notifiable Diseases for July/August 2001	Nancy Horner	10
November/December 2001	Bioterrorism Update: Anthrax	Jennifer Blackmon	1
	Love It and Live It or Leave It Alone!	Raymond Martinez	5
	Hepatitis A Surveillance and Control	Jennifer Blackmon	6
	Reported Cases of Selected Notifiable Diseases for September/October 2001	Nancy Horner	8

Reported cases of selected notifiable diseases for November/December 2001

Disease	Cases Reported in November/December		Cumulative Cases Reported through December	
	2000	2001	2000	2001
AIDS	35	23	383	197
Campylobacteriosis	3	1	41	36
Chlamydia	394	332	2,401	2,089
DRSP (Invasive drug-resistant <i>Streptococcus pneumoniae</i>)	7	0	42	22
<i>Escherichia coli</i> 0157:H7	2	0	8	4
Giardiasis	1	0	23	23
Gonorrhea	373	236	2,401	1,639
Hepatitis A	7	5	44	44
Hepatitis B (acute)	6	0	40	20
Hepatitis B (perinatal)	2	1	22	13
HIV	53	33	458	311
Influenza-like Illness	16	2	722	133
<i>Neisseria meningitidis</i> disease	0	0	7	7
Salmonellosis	5	4	76	59
Shigellosis	2	1	18	8
Syphilis (primary and secondary)	35	3	193	77
Tuberculosis	17	11	81	67
VRE (Vancomycin-resistant enterococci)	11	3	61	56

To report a notifiable disease, please contact:

Sexually transmitted diseases: Pat Petty at 340-5647

Tuberculosis: Diane Schmitt at 340-5650

AIDS/HIV: Mary Angel-Beckner at 340-5330

Hepatitis C: Jennifer Blackmon at 340-5671

Hepatitis B: Denise Stratz at 340-2174

Vaccine-preventable diseases: Mary Fowler at 340-2168

All other notifiable diseases: Pam Trotter at 340-5632

Return Service Requested

Public Health Watch welcomes feedback, articles, letters, and suggestions. To communicate with *Public Health Watch* staff, please:

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